CLAIMS

1. A system for detecting low voltage in an electric appliance having multiple loads (10) energized by drive switches (20) commanded by respective electronic controls (30), which are energized from a power source (40) connected to an electric network for energizing the loads (10), and which are operatively coupled to a command module (50) for driving the loads (10), characterized in that it comprises: a compensating load (60), energized by the power source (40) and which is constructed to maintain constant the current consumption of the power source (40) and the relation between the voltage of the electric network and the voltage of the power source (40), regardless of the number of loads (10) being energized; a control unit (70) operatively associated with the command module (50) and with the compensating load (60), in order to define the current consumption of the compensating load (60), as a function of the energization state of the electronic controls (30); and a voltage sensing means (S) operatively associated with the power source (40) and with the control unit (70), so that the latter produces, through the drive switches (20), the de-energization of the loads (10) when the voltage of the power source (40) is lower than a predetermined minimum value.

2. A system according to claim 1, characterized in that the compensating load (60) has its current consumption varying, automatically, from a minimum value, when all the loads (10) are energized, to a maximum value when all the loads (10) are de-energized.

3. A system according to claim 2, characterized in that the minimum value of current consumption produced by the compensating load (60) is zero, whereas the

maximum value of said current consumption is that corresponding to the sum of the current consumptions produced by the electronic controls (30) of the drive switches (20) of all the loads (10) when energized.

4. A system according to claim 3, characterized in that the value of the current consumption produced by the compensating load (60) is equal to the difference between the maximum current consumption of the power source (40), with all the loads (10) being activated, and the instantaneous current consumption of the power source (40).

5. A system according to claim 1, characterized in that the energization state of the electronic controls (30) is informed to the control unit (70) by the command module (50).

6. A system according to claim 2, characterized in that the variation of the current consumption of the compensating load (60) is obtained by pulse width modulation for energization of the compensating load (60).

7. A system according to claim 6, characterized in that the energization of the compensating load (60) is made through a modulation switch (80) operatively associated with the control unit (70).

8. A system according to claim 6, characterized in that the compensating load (60) is defined by a resistance of a constant value.

9. A system according to claim 1, characterized in that it further comprises a timer (T) operatively associated with the control unit (70) for impeding the de-energization of the loads (10) upon occurrence of low voltage situations in the power source (40) with a duration inferior to a predetermined period of time.

10. A system according to any one of the previous claims, characterized in that the electric appliance

is a refrigerator or a freezer.